



Florida International University

Fall 2024 Senior Design Project

GeoMapper

Students: Christopher Alfonso

Mentor: *Antonio Hernandez*, Florida International University

Instructor/Faculty: *Masoud Sadjadi*, Instructor Florida International University



PROBLEM

Create a simple, user-friendly platform for professionals and travelers to document, organize, and share field observations, discoveries, and insights through a geotagging app. Geotagging is the process in which you can assign geographical coordinates to digital media. We were tasked with creating a java-based web app to solve this problem.

APP FUNCTIONS

- Web Based App
- Import Digital Media Into Project
- Create/Open Project
- Extract Geographical information from imported media
- Annotate and edit properties of the media such as longitude, latitude, name, etc.
- Export to KML/KMZ files compatible with Google earth and other Apps.

INDIVIDUAL CONTRIBUTIONS

Myself alongside Alex Jong A Kiem were tasked with being the backend developers for this project. Here are the list of things I worked on:

- Helping establish the workflow for the backend, and how it interacts with the frontend/user.
- Created Media and Project classes which are essentially entity classes that represent the core data structures for managing user-uploaded media and projects, encapsulating attributes like GPS coordinates, annotations, titles, and file paths for media, as well as project-specific details. These classes form the foundation for data persistence and interaction within the backend system
- Wrote code for extracting metadata from images, such as name, coordinates, etc.
- Wrote code for loading media into the backend.
- Created service classes for both Media and Project Entity classes which contain methods for manipulating media objects and performing actions such as adding annotations, changing names, changing coordinates of media.
- Created Service classes and their respective SpringBoot request to handle backend and frontend interaction. These services facilitate CRUD operations for media and projects,
- General testing through Postman, bugfixing, and exception handling.
- Communicated with frontend developers to help app come together.

TECH STACK

Front-End



Back-End



REQUEST CODE SNIPPET

```
@PostMapping(value = "/upload", params="filePath") no usages
@ResponseStatus(HttpStatus.CREATED)
public Media addMedia(@RequestParam String filePath){
    try {
        return projectService.addFile(filePath);
    } catch (IllegalArgumentException ex) {
        throw new ResponseStatusException(HttpStatus.BAD_REQUEST, ex.getMessage(), ex);
    }
}
```

ACKNOWLEDGEMENT

The material presented in this poster is based upon the work supported by Dr. Antonio Hernandez. We/I thank Dr. Hernandez for his/her/their assistance and mentorship that I/we received throughout the senior design project.

FLORIDA INTERNATIONAL UNIVERSITY

